



Advanced Light Combat Vehicle Armament (ALACV) Air Bursting Munition

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Briefing Agenda

- Objectives
- Demonstration Vehicle Constraints
- Case Length Determinations/Mann Barrel Interface
- Body Sleeve
- Baseline Body Design Analysis
- Fuze



Objectives

- Develop a cartridge that will burst at a pre-determined location
- Show an increase in lethal area of 400% when compared to a 30 x 173 HEI projectile with a PD fuze

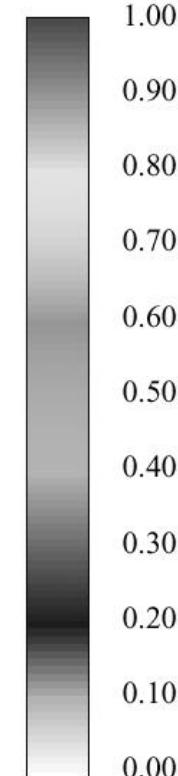
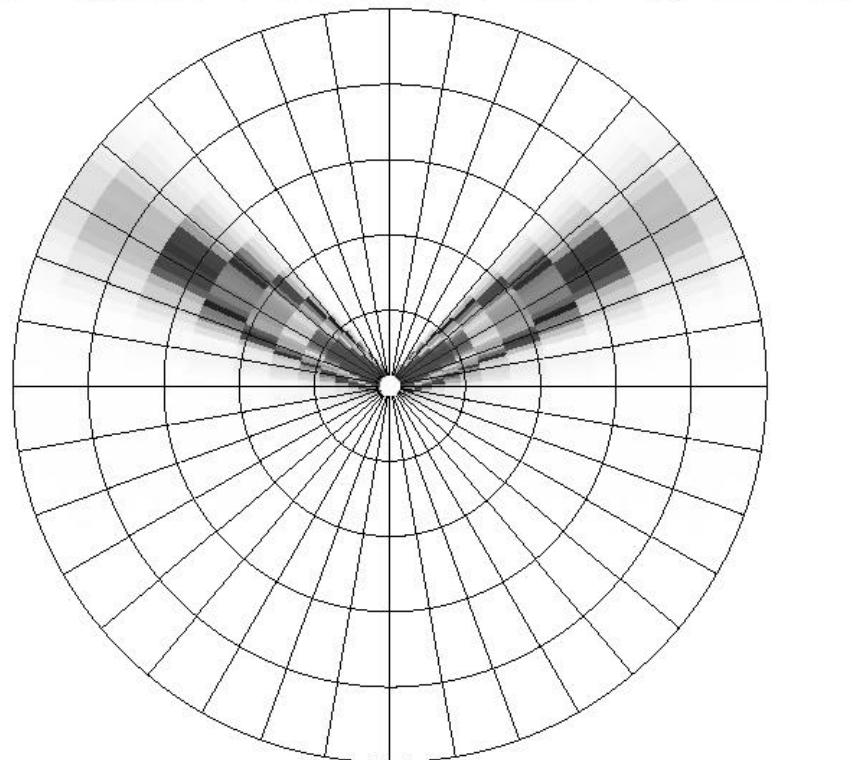


PROBABILITY OF INCAPACITATION GIVEN A BURST

Warhead: Generic 30mm

Range: 1000 m - Burst Height: 0.00 ft

Prone Target - Incapacitation Criterion: 30 Second Assault - Body Part: Whole Body



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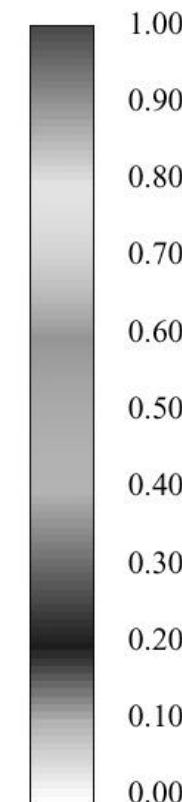
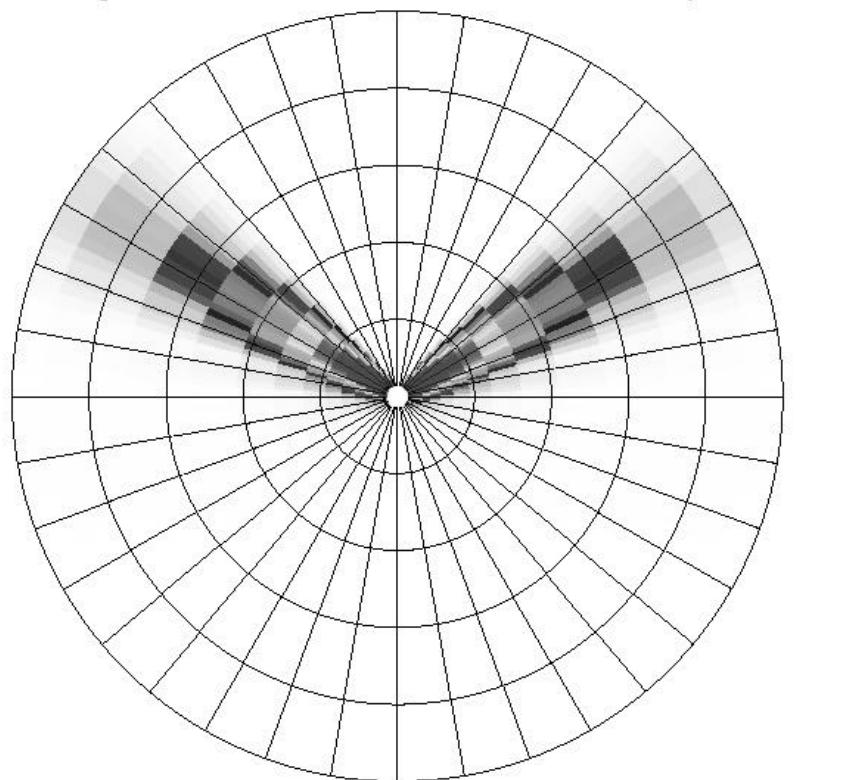
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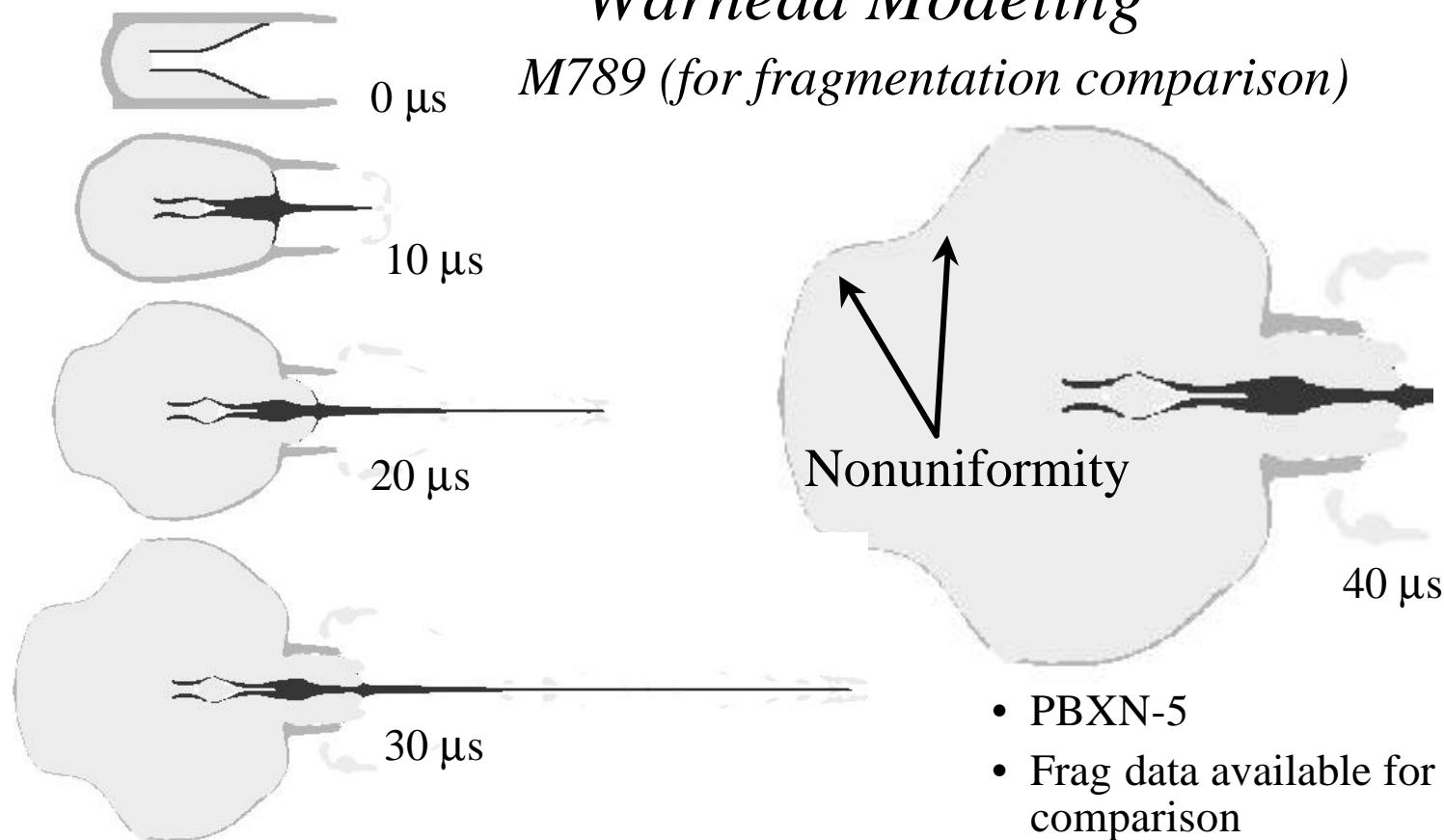
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Warhead Modeling

M789 (for fragmentation comparison)

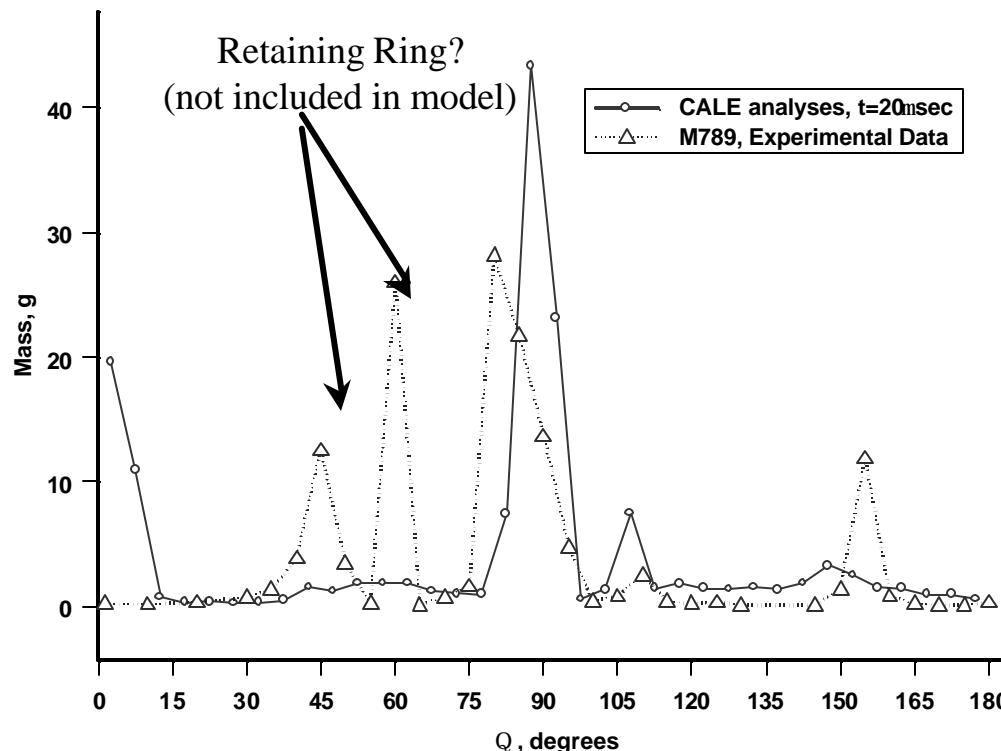


- PBXN-5
- Frag data available for comparison



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M789 fragmentation comparison

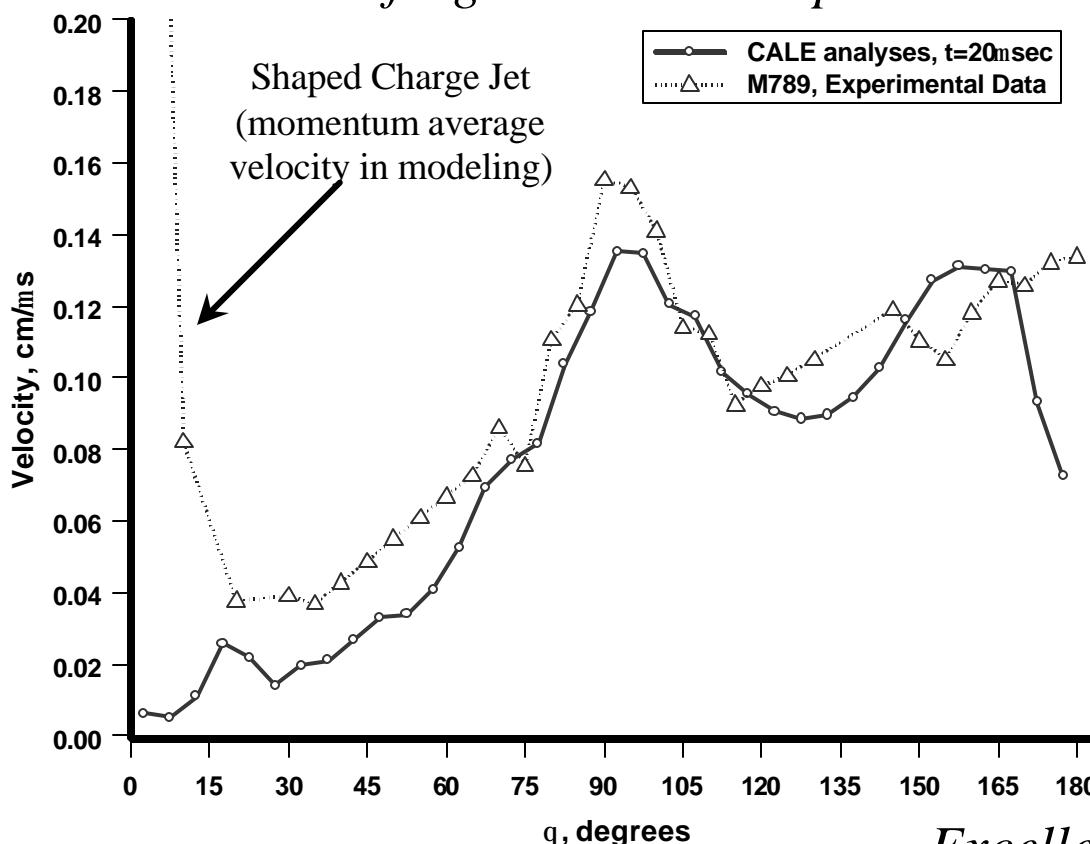


Excellent Agreement!

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M789 fragmentation comparison

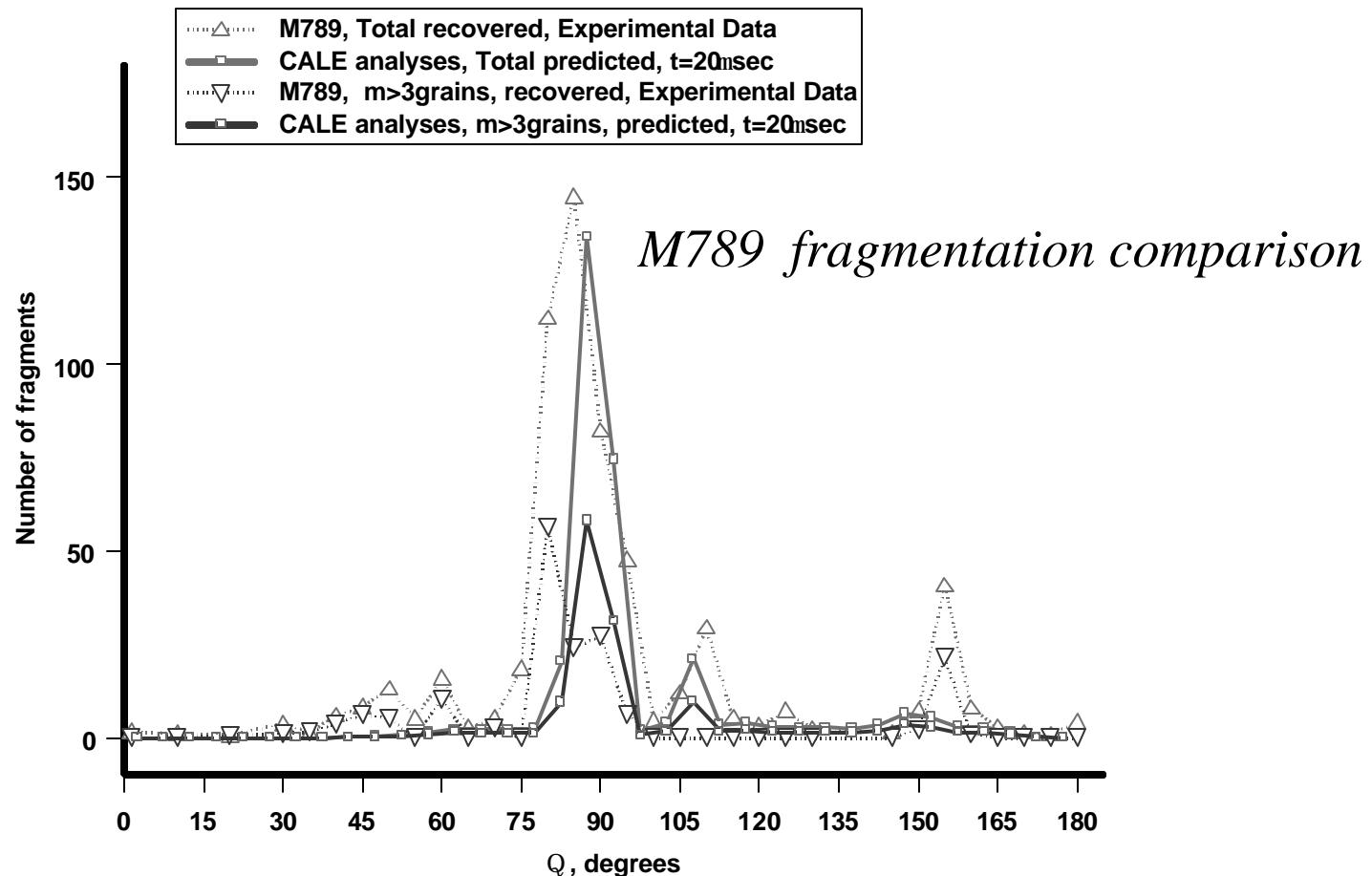


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Preliminary Baseline Base Fuzed



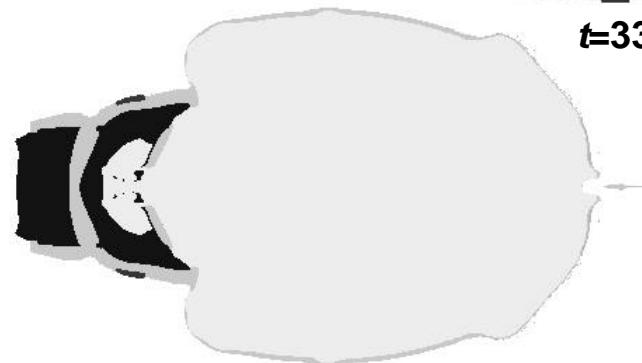
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$t=22.5\% (0.1770 \text{ in})$



$t=33.7\% (0.2655 \text{ in})$

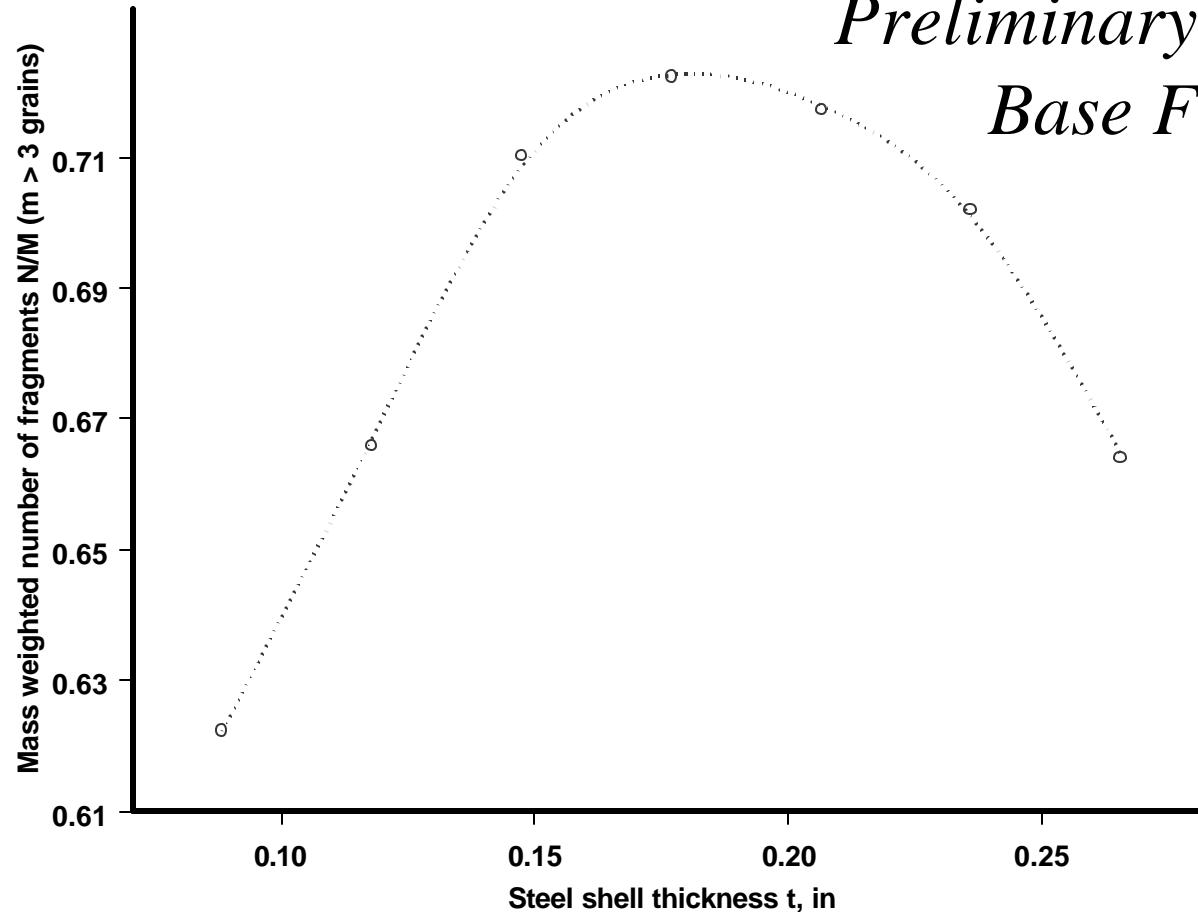


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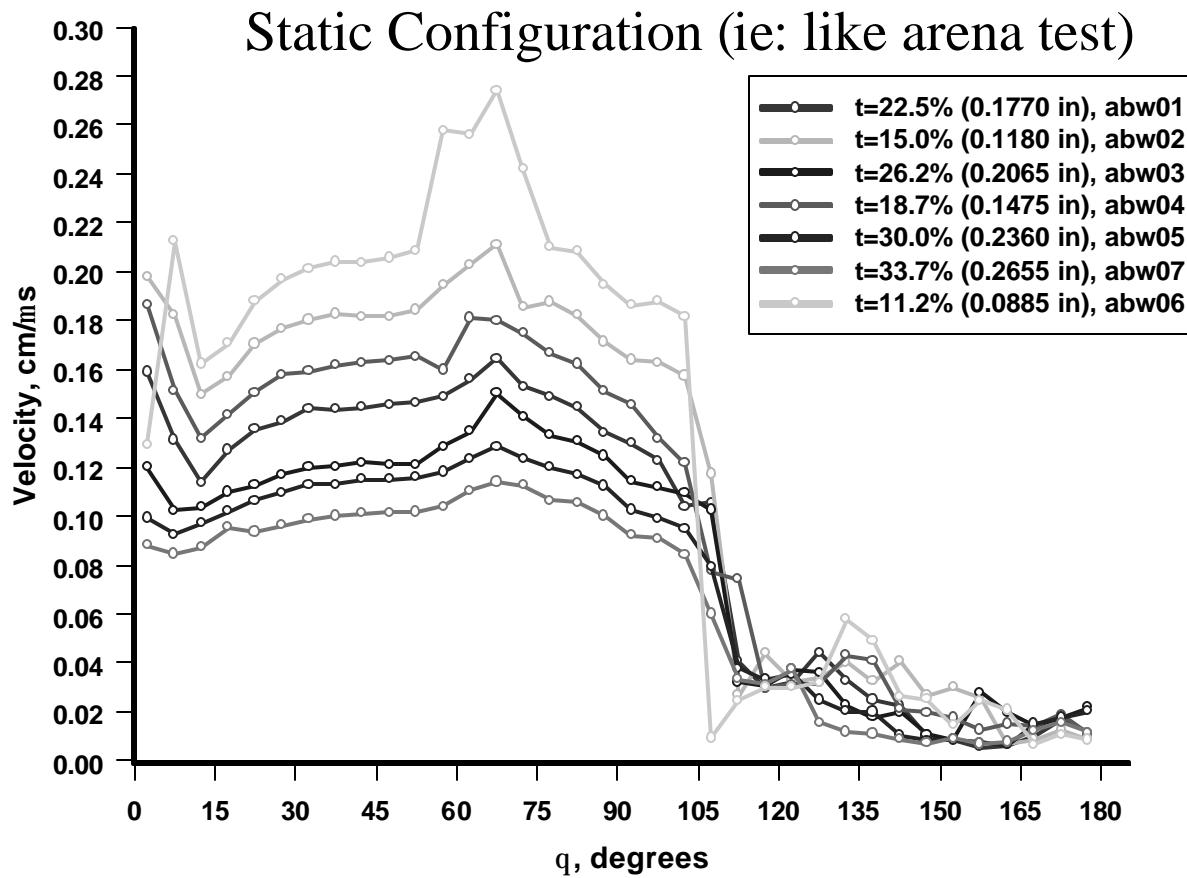
*Preliminary Baseline
Base Fuzed*



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*ALACV A/B Warhead
Downselected Baselines*

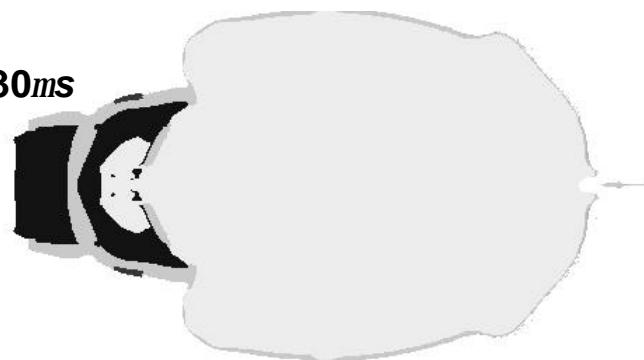
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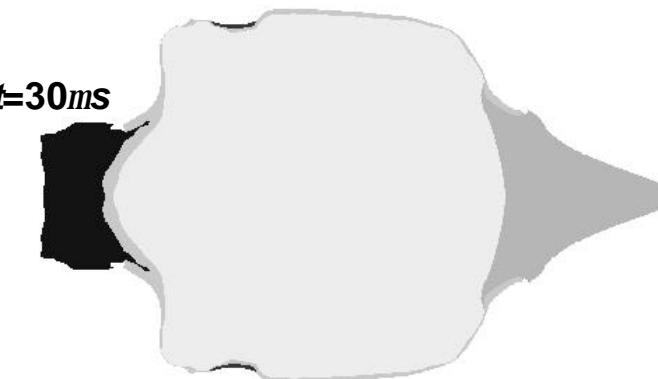
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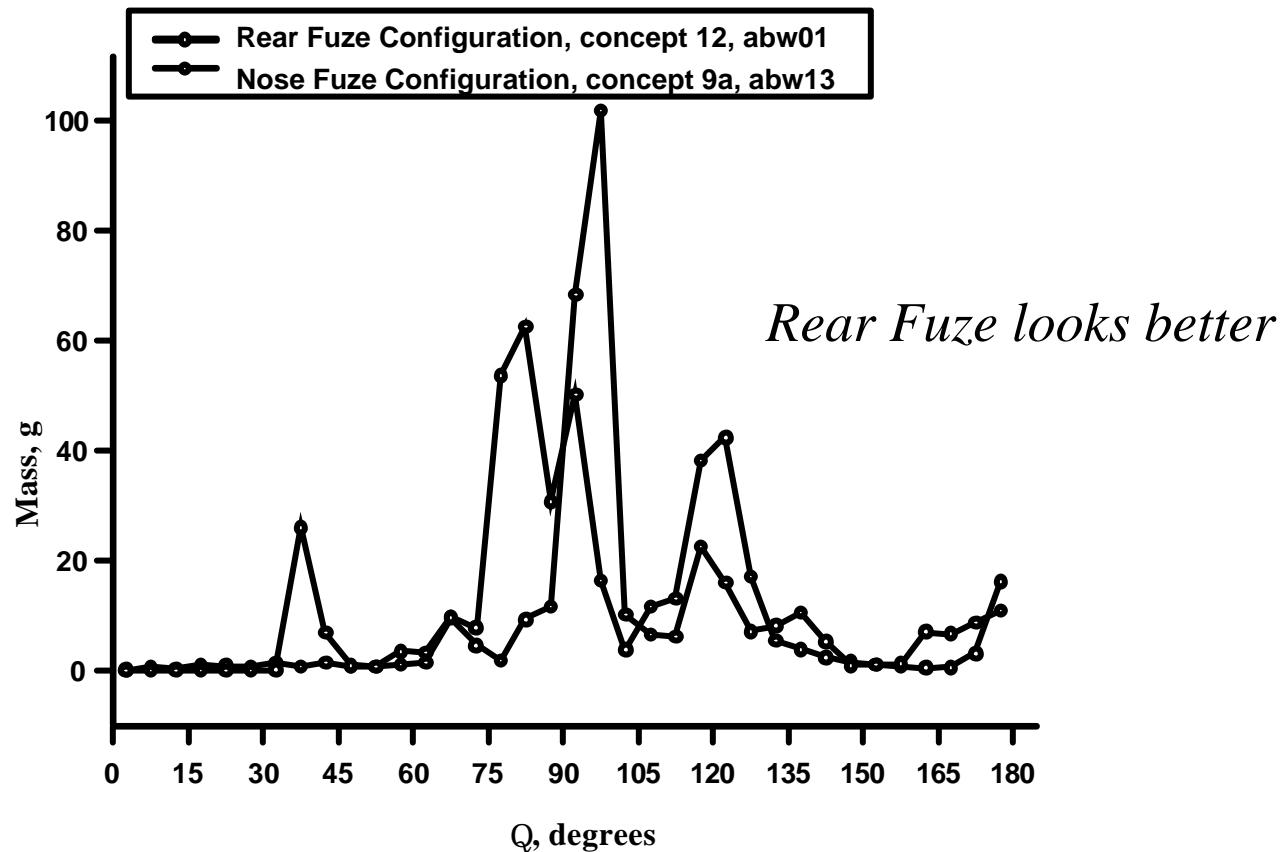


**Rear Fuze Configuration
(concept 12, abw01)**

**Nose Fuse Configuration
(concept 9a, abw13)**



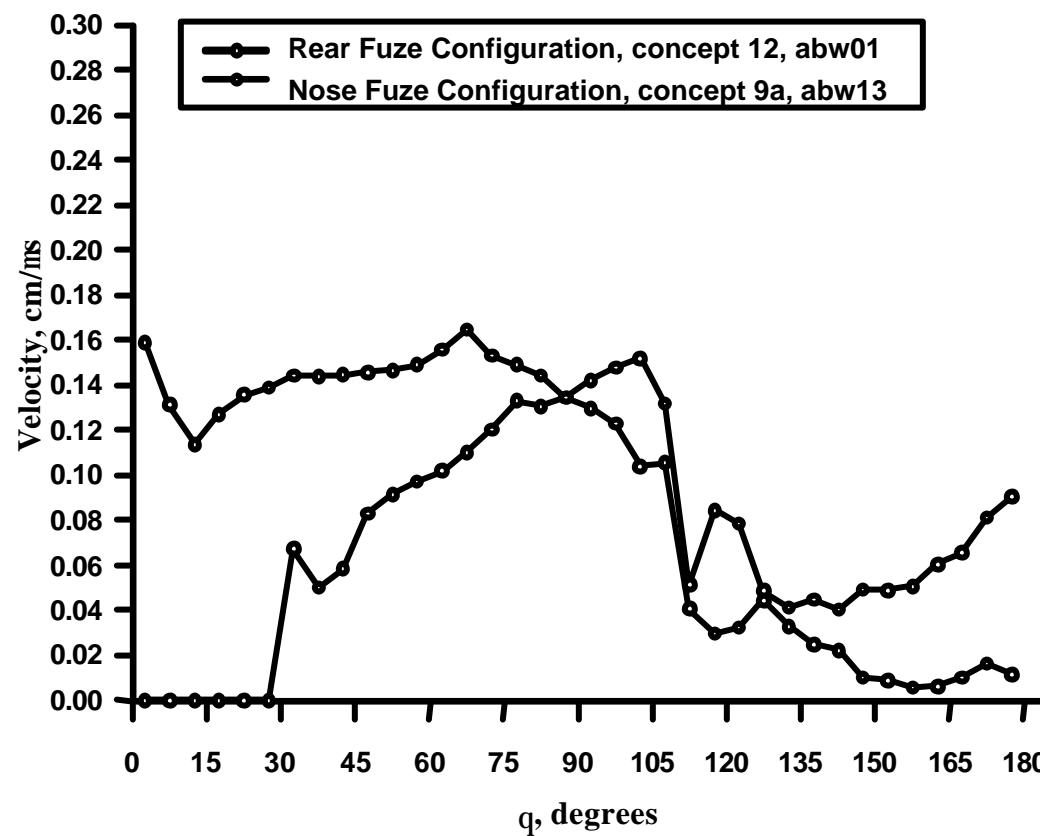
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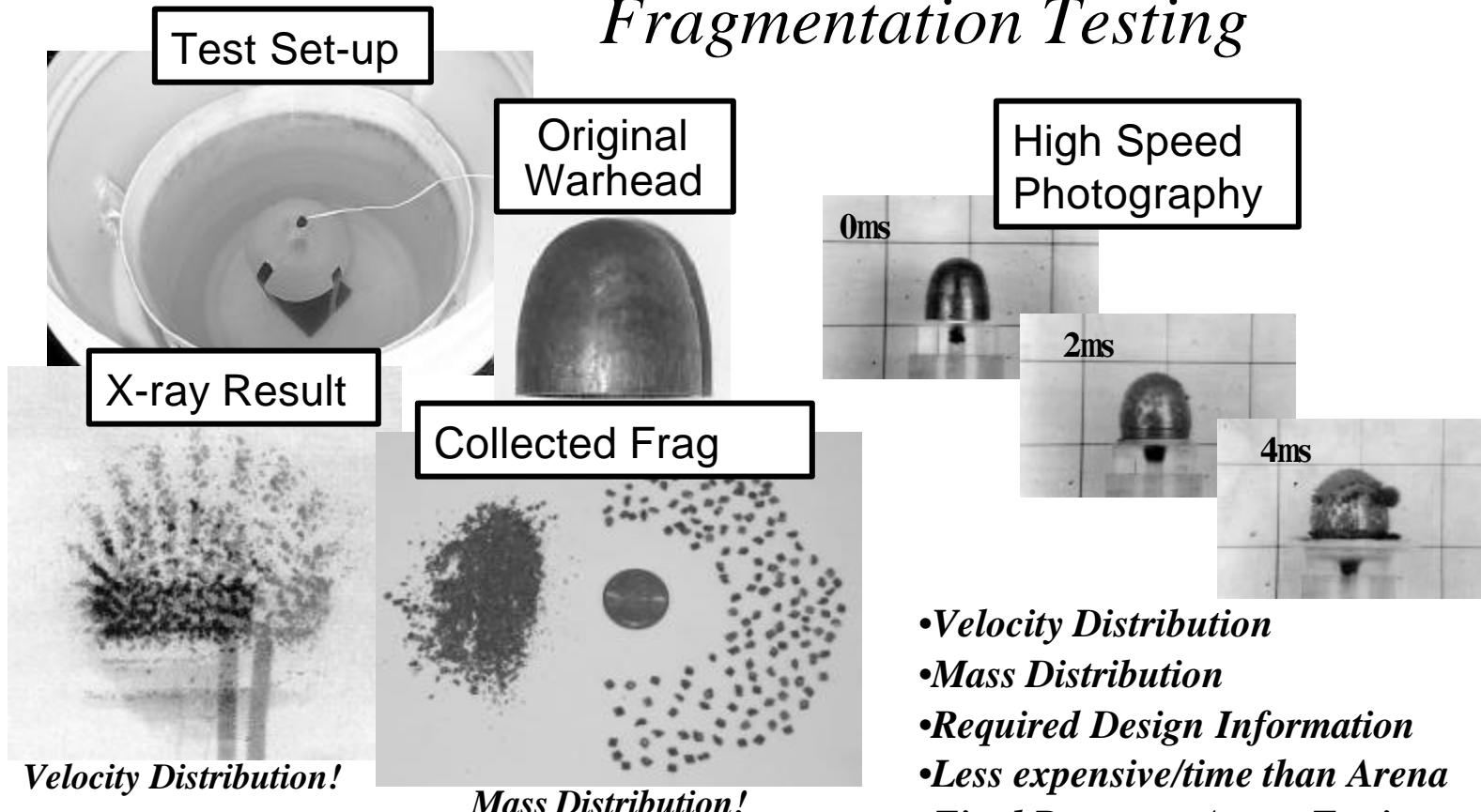
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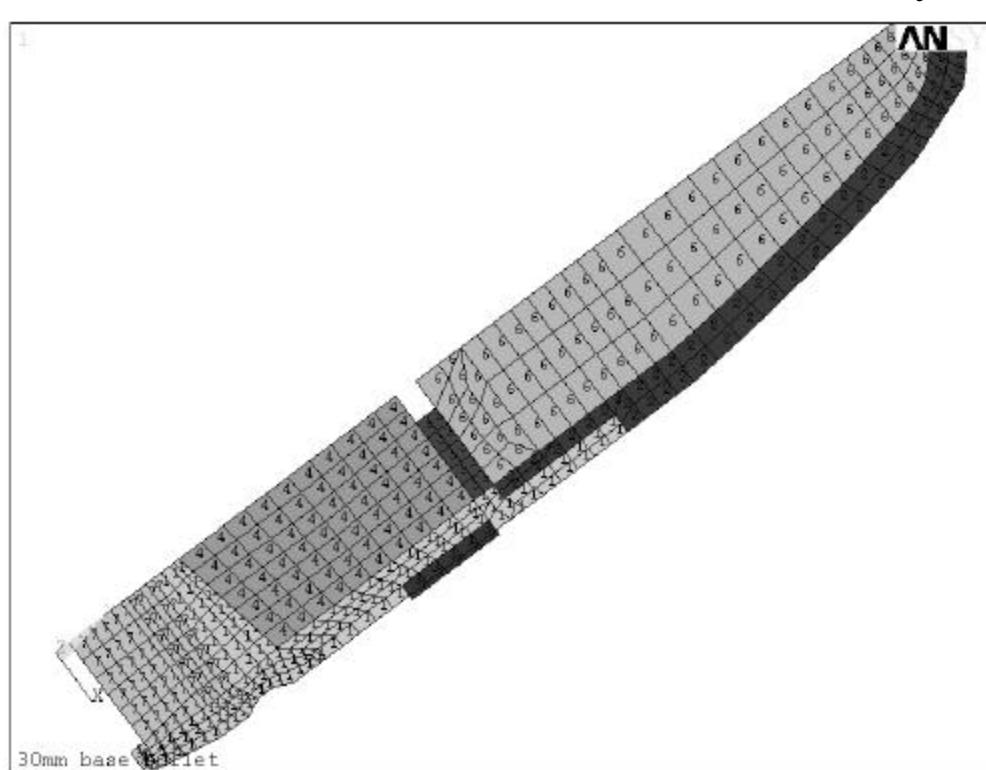


- **Velocity Distribution**
- **Mass Distribution**
- **Required Design Information**
- **Less expensive/time than Arena**
- **Final Prototype Arena Testing**



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*Base Initiated Steel Baseline
Finite Element G-load analysis*

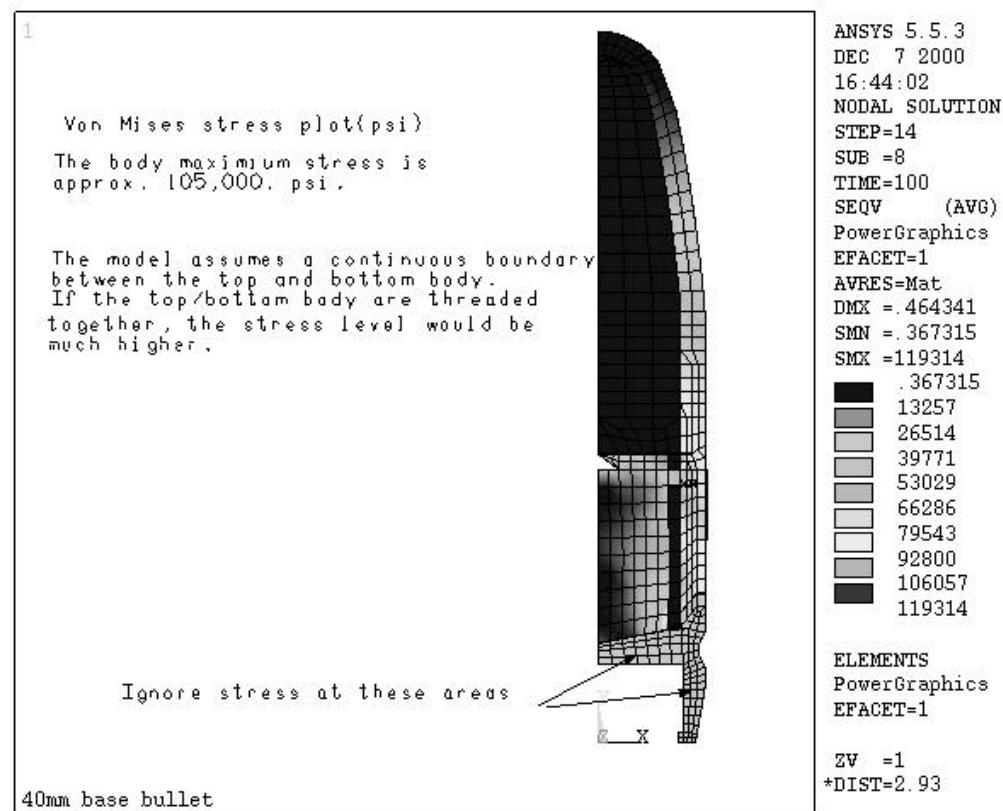


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Warhead Survives Full Load

Finite Element G-load analysis



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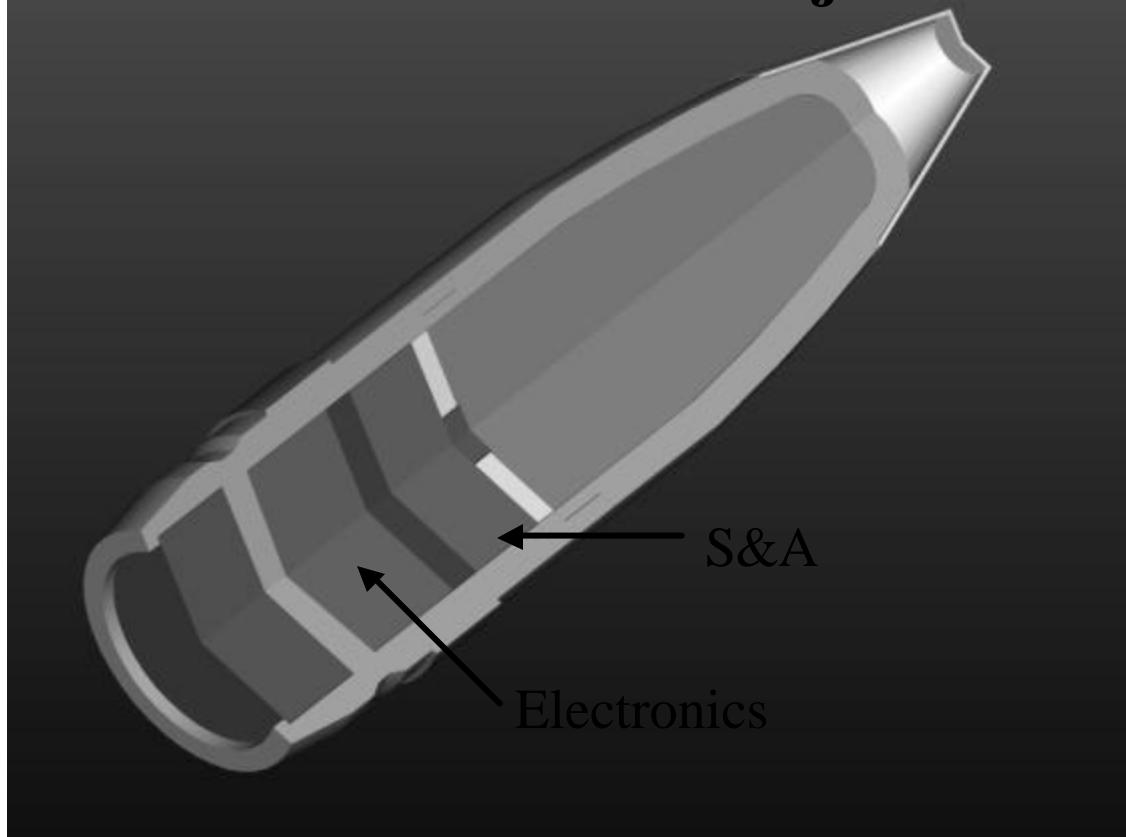


ALACV FUZE

- In-house Design of a Modular Timed Fuze
 - Maximum Use of Off-The-Shelf Components
 - Pre-set Time Input
 - Single Shot Test Firing Only
- CRADA with Industry
 - Define Interfaces between Electronics/S&A
 - Partner to Demo Advanced Designs & Multiple Mission Modes



ALACV Baseline Projectile



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